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UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Northeastern Area-State & Private Forestry
Box 365, Delaware,Ohio 43015

REPLY TO: 5200 Forest Insect & Disease Control August 2, 1974

SUBJECT: Oak Leaf Roller Complex - ANF

TO: Forest Supervisor
Allegheny National Forest

Attention: George Semmens

In early June the Allegheny National Forest alerted our office concerning defoliation of oak on the western edge of the Forest near Titioute, Pa. A flight over the area on June 25 and subsequent ground checking on June 26 revealed an outbreak of the oak leaf roller complex on approximately 63,000 acres (map attached). The ground and aerial surveys conducted by Forest personnel showed oak mortality occurring in some of the high population areas. The major insect species of the complex appears to be Archips semiferanus Walker.

The oak leaf roller problem on the Allegheny National Forest has been reviewed by our office and the purpose of this letter is to present an overview of the situation with possible alternative causes of action.

The oak leaf roller complex comprises a combination of known and unknown species. Of those species described, very little is known. A. semiferanus is the species which has the most information available. Since it appears to be the primary species involved on the Forest, we have based our review on it.

Life History. In Pennsylvania eggs hatch during late April and early May, at or shortly before bud break. Larvae that emerge before foliation enter and mine leaf buds, later larvae roll and feed on the leaves. Larvae feed mainly on oaks, but in areas of high population will also feed on maples. Feeding continues to the latter half of June, at which time pupation occurs in rolled leaves, bark crevices or other sheltered places. Adults emerge and mate following a 7-10 day pupal stage. Females deposit their eggs on trunks and larger branches of oaks. In heavy populations, egg masses may be found on practically any woody vegetation.

History of Outbreak and Damage - Pennsylvania. Pennsylvania has been plagued by this insect since 1967. In the years from 1967-1973 the oak leaf roller defoliated 3.6 million acres of forest land. Mortality figures from 1970-1972 were a loss of 2,438 million board feet on 900,000 acres sampled. The stumpage value for this area was 57.3 million dollars. Early estimates from this year's field work for the state indicate 200,000 acres of defoliation in Elk and Clearfield Counties.

The oak leaf rollers cause such severe damage for three reasons: 1.) early hatch results in the mining of the buds, therefore the tree may never leaf out; 2.) stress on the tree resulting from defoliation opens the door for the two-lined chesnut borer Agrilus bilineatus (Weber), which girdles the tree; and 3.) as the results of the numerous species in the complex, the rollers may cause repeated defoliation for 5-6 years in the same area. The above three factors singly or in unison will cause extensive mortality.

Alternatives. In reviewing the history of the insect complex and the situation on the Allegheny National Forest, we propose three alternatives for action. The alternatives may be used singularly or in combination to resolve the pest problem.

Accelerated Cutting - Salvage. This method may prove to be the most economical. As the figures of past history demonstrate, mortality will occur and salvage operations will be necessary. However, if an accelerated-cut program were developed then areas under stress from high population of rollers could be put up as "green sales" and prevent resultant mortality, as well as control movement and build-up of the rollers and two-lined chestnut borer.

Chemical Control. Chemical control requires an Environmental Impact Statement and a registered insecticide. Presently, Sevin-4-Oil applied at 1 lb ai/acre is registered for use against oak leaf rollers. If a spray project is decided upon, the necessary procedures and responsibilities are outlined:

1. Aerial and ground detection surveys (FPM).
2. Biological evaluation and analysis (FPM).
3. Cost-benefit analysis (ANF).
4. Environmental Impact Statement (FPM & ANF-RO).
5. Decision for action (ANF-RO).
6. Project proposals (ANF-RO).
7. Spray opeerations (ANF-FPM).
8. Action - pre and post control surveys (ANF-FPM).

A chemical control project may be expensive and must be justified on a cost-benefit basis relative to the value of the affected forested area. Also, a biological evaluation will be difficult because of the lack of information and the variety of species involved in the roller complex.

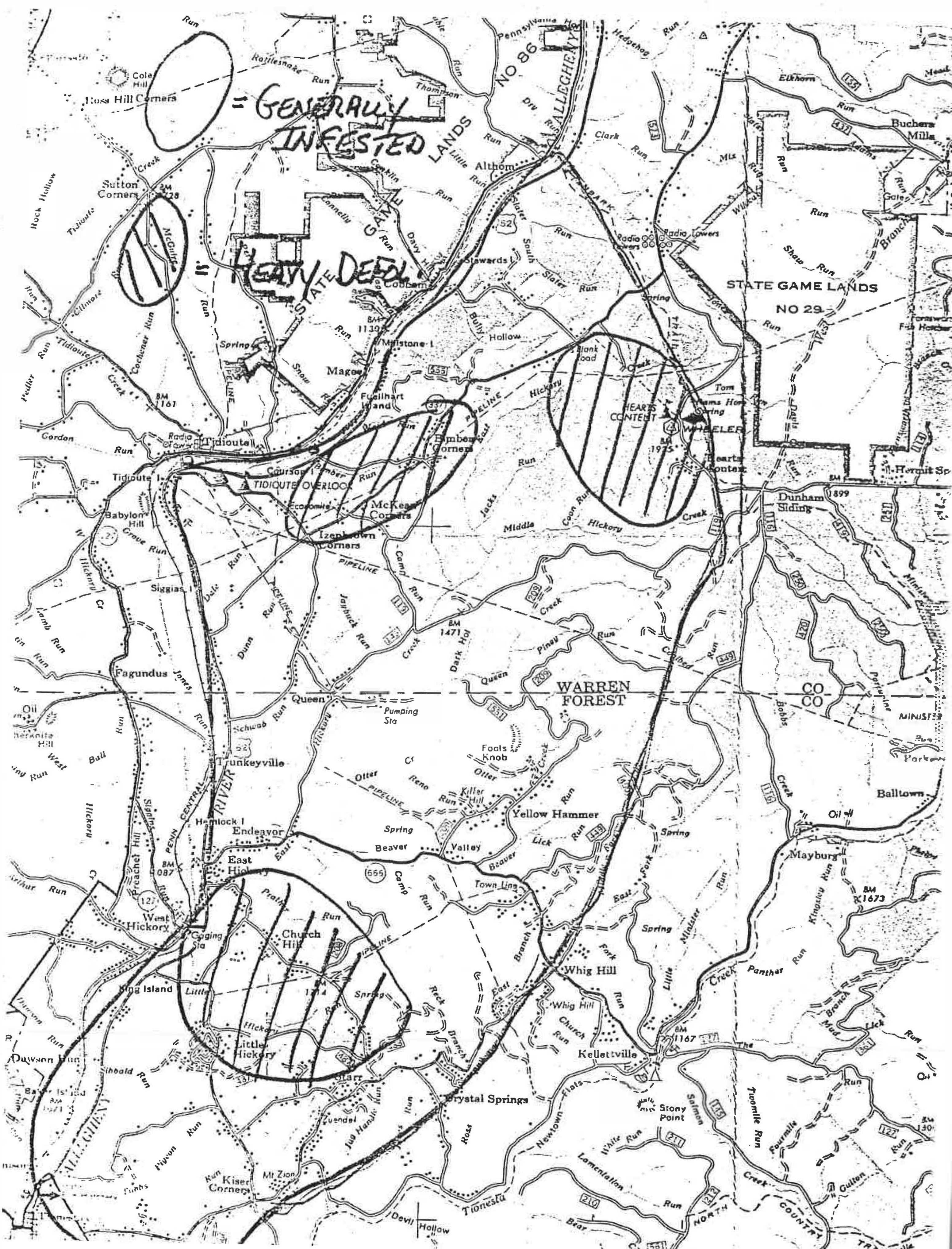
No Action. No action is also a viable alternative. If this action is decided upon, then the resulting mortality must be acceptable. Mortality will probably be equivalent to that occurring in the late sixties and early seventies mentioned in the "History of Outbreaks - Damage Section." If this mortality is justified on a cost-benefit basis, then no action is a solution.

The information presented summarizes our literature and knowledge of the pest. Enclosed are copies of the literature we have on the oak leaf roller complex. We hope this brief overview of the situation on the Allegheny National Forest will aid in your decision upon a plan of action. Please contact us if we may be of further assistance.

JAMES B. HANSON
Acting Field Representative

Attachments

cc: Regional Forester, R-9 w/map
D. O. VanDenburg w/map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Fools Knob
Killer Hill
Yellow Hammer
Hemlock I
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East Hickory
West Hickory
Church Hill
King Island
Little Hickory
Starr
Crystal Springs
Zuendel
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